# SDO Education and Public Outreach

*Planet Walk*

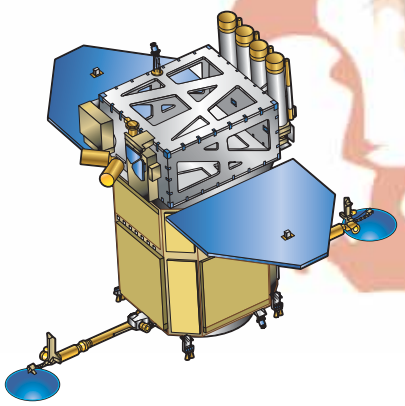
Working with educators, science centers, community organizations and museums, the SDO E/PO team will develop initiatives to engage the public in scientific discoveries and technological achievements that will improve their understanding of science, math and technology. Specifically, these efforts will elevate current levels of science literacy and improve the public's understanding of the Sun's role and influence on Earth and Space.

SDO project management is committed to develop a successful and effective E/PO program that is aligned with the goals and objectives outlined by the Education Enterprise in NASA's Education Enterprise Strategy. The SDO E/PO office was established over one year ago and has already created some unique and exciting partnerships in an effort to share with the public, new discoveries and technological achievements in the area of solar science.

The E/PO Lead, Emily Drobnes, has assembled a team of scientists and education specialists, including one from each of the three instrument teams, to develop a comprehensive program meeting the goals and objectives identified by the Education Enterprise. SDO educational initiatives will be an extension and a complement to the overall Sun Earth Connection (SEC) and LWS E/PO efforts.

Specific details of the E/PO programs at both the project level and instrument level will be available early next calendar year upon release of the SDO E/PO Plan. Some of our early initiatives at the project level include:

Dynamic Sun Workshops
Our first effort was the brainchild of Barbara Thompson, SDO project scientist. Knowing that the key to successful outreach is a strong pool of volunteers, several "Dynamic Sun" workshops were conducted to introduce engineers and scientists to the world of education outreach.



*What is Public Outreach?*

*Public Outreach includes activities, projects, exhibits, and materials aimed at both students and adults, to be used in public and informal educational settings. Opportunities and events for this kind of E/PO would include public lectures; web-based information and resources; animations, video and slide materials; informational handouts; support for television programming (i.e., the "Live from…" series, TV "live shots", etc.); occasions where amateur astronomers can present demonstrations using our activity kits and materials, and tie-ins to national events like Space Day and SED.*

From providing speaking tips and presentation materials to experiencing hands-on teaching tools, participants were infused with the knowledge and confidence to participate in education outreach efforts. Be it in a formal educational setting, or with Scout troops in the community center, these volunteers have acquired the skills and resources to make a difference. Numerous staff members have voluntarily conducted programs in local schools and in their communities, either separately or as a team, to promote NASA science and career opportunities.

Planet Walk

Collaboration with the Friends of Anne Arundel County Trails, Planet Walk Committee has provided a perfect vehicle for SDO to contribute to NASA's goal of improving the public's understanding and appreciation for science, math, engineering and technology. The two groups have combined efforts during the past year to complete a linear art gallery and unique educational exhibit of our solar system

The Planet Walk will shrink our 3.7 billion mile solar system down to 4.6 miles and place the sun and all the planets on the Baltimore and Annapolis Trail, keeping the distances to scale. Each station will contain a full complement of multi-disciplinary educational displays centered on a one-of-a-kind art sculpture for that planet. As a partner, SDO scientists and E/PO staff provided scientific content and graphics for the Sun Station exhibit, and will coordinate efforts with relevant NASA missions to provide the same type of support for the nine planets. The educational panels designed by the SDO team will serve as the model for development of the remaining panels.

This project will also include an interactive web-site with dedicated sections for elementary, middle and secondary educators and involve the NASA Explorer Schools (NES) and organizations selected for the NASA Explorer Institute initiative as well. (See Goddard News "NASA Mission Contributes Sun Station to Planet Walk" by Nancy Neal)

Chesapeake Children's Museum (CCM)

During the past year, SDO has coordinated with the CCM to create new programs and enhance existing programs geared toward a very diverse and underserved community. Bringing NASA science into the museum through creative hands-on experiences has enriched the lives of hundreds of visitors, from ages 2 to 16. An exhibit has been designed and is in fabrication that will not only give a visual lift to the museum, but will provide manipulative and sensory experiences to enhance early childhood development for even the youngest of visitors. Activities related to each of the exhibit categories provide parents and teachers with additional tools to facilitate the learning experience. Programs conducted during the past year included celebration of "A Century of Flight" where hands-on activities such as "Balloonautics", "Pop Rockets", "Eat Wright" (gliders made from edible products) and "Wind Tunnel Experiments" captivated young participants. Scout "Space Day" programs included creating constellations, participating in the "Mars Rover" simulation game and learning how to live and work in space.

NASA Explorer Schools (NES)

SDO team members Emily Drobnes, Dean Pesnell and Barbara Lambert were thrilled to be part of the training team for this year's NASA Explorer Schools. Conducted by the Goddard Education Office and the NES program, week long workshops introduced NES teachers to the world of NASA. Using the Sun as a tool to enhance education in the classroom was the focus for the SDO portion of the workshop. Teachers were presented with visual and auditory, and manipulative learning experiences in solar science that could easily be incorporated in many other disciplines such as history, mathematics, English and even art! The team received excellent ratings and high praises for demonstrating how NASA tools and resources can be used to create an exciting learning experience for students.

Instrument E/PO Efforts

Although we have highlighted a few of the project level E/PO initiatives, the instrument teams have very well defined and successful education outreach programs as well. In the formal education arena, HMI/AIA has established a Student Science Fellows Program at both Stanford and Montana Universities to provide student role models who share the excitement of scientific discovery with students in underserved communities. They have also developed a low-cost Solar Sudden Ionospheric Disturbance (SSID) monitoring system than can be readily installed and used by students to track solar –induced changes in the Earth's ionosphere. Evaluated classroom activities and teachers guides will accompany the devices to create

an overall hands-on, inquiry based experience. A Solar Planetarium Project is underway with the Lawrence Hall of Science (LHS) to address the need for solar planetarium programs designed for students in middle school that are also appropriate for interactive and/or portable planetaria. In addition, the SDO instrument leads are collaborating with the Sun-Earth Connection Education Forum to support the theme for Sun-Earth Days. This year, SDO and HMI will develop a complementary web site focused on the Big Horn Medicine Wheel to support the "Ancient Observatories – Timeless Knowledge" theme.

Program Assessment and Evaluation

All NASA E/PO programs will require assessment and evaluation. The SDO project office will provide project-wide evaluation planning and coordination related to overarching SDO E/PO goals. The SDO project and instrument teams will implement shared evaluation strategies and tools in order to make claims project-wide. The method for assessment is currently being documented and will be available with the release of the SDO E/PO plan. For additional information regarding any of the SDO E/PO efforts, please contact Emily Drobnes at emilie@ihy.gsfc.nasa.gov